Business Unit Vibrant

MED EL

Fitting Guide

SAMBA™

hearLIFE

Table of Contents

4 INTRODUCTION

5 FIRST FIT

7 Starting the Fitting Session
8 The Vibrogram
10 First Fit of the SAMBA audio processor
12 Basic Tuning

13 FOLLOW-UP FITTING

15 Fitting Assistant
16 Fine Tuning

21 APPENDICES

23 miniTEK™
25 Intelligent Sound Adapter
26 Curve Display
27 Useful CONNEXX Tools

Introduction

The new SAMBA, with its key features **Automatic/Ambient Sound, Intelligent Sound Adapter** and **Remote Control,** sees the beginning of a new era for VIBRANT MED-EL's audio processors. The **Vibrogram** function, for direct threshold measurement through the SAMBA, integrated within the SYMFIT 7.0 software, is now available for all SAMBA variants and for both the Vibrant Soundbridge and Bonebridge implant systems.
SAMBA's sleek and ergonomic design allows for easier handling, and gives users the option of personalizing their SAMBA by choosing from the wide selection of cover colours and designs.

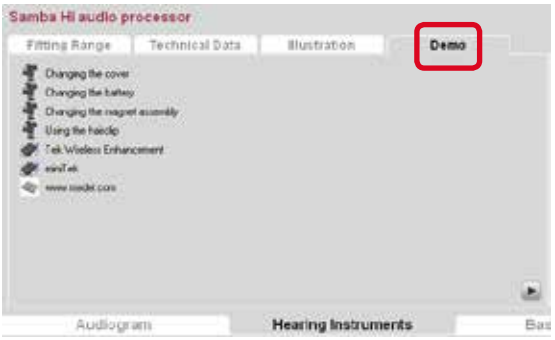
The SAMBA Fitting Guide enables the professional to follow a straightforward fitting workflow. It provides step-by-step instructions and describes how the new features of the SAMBA function.

Hardware and Software setup

For hardware and software requirements, please refer to the SYMFIT 7.0 user manual and the SAMBA user manual.

Explaining the SAMBA features and functions

Handling of the SAMBA audio processor is explained straight forward in the SAMBA IFU. Handy videos showing quick demonstrations of how to use the SAMBA audio processor can be found by selecting the demo tab within the **Hearing Instruments** section of the CONNEXX software.



First Fit

THE AIM OF THIS CHAPTER IS TO OFFER A SIMPLE, YET EFFICIENT WORKFLOW FOR THE INITIAL FITTING OF THE SAMBA AUDIO PROCESSOR BASED ON THE VIBROGRAM FITTING METHOD. IT WILL GUIDE THROUGH THE PROCESS OF CREATING A CLIENT WITHIN THE CLIENT LIST, PERFORMING THE VIBROGRAM AND FURTHER ON APPLYING THE FIRST FIT PROCEDURE.

Starting the fitting session – entering client data

After starting up the CONNEXX software the **Client List and Data** window appears (Figure 1). In the First Fit session a new client will be created. The fields **Last Name, First Name** and the **Date of Birth** must be filled in, other entries are optional.
If the client already exists respective data can be loaded via selecting the client from the name list.

Figure 1

Detecting the SAMBA audio processor

First it is neccessary to detect the hearing instrument via the **detect connected instruments** button on the toolbar (Figure 2). It is not necessary to select the audio processor variant at this point. The detection function automatically recognizes which audio processor is connected. Select **Follow-Up fitting (go to Fine Tuning)** on the window which appears and select **Ok**. You will be forwarded to the **Fine Tuning** tab.

Figure 2

The Vibrogram

The **Vibrogram** is a pure tone audiogram measured by direct stimulation of the inner ear through the Vibrant Soundbridge or the Bonebridge implant system. This innovative approach shows the response of hearing thresholds at each measured frequency by directly driving the inner ear with the implant. The obtained levels result in a specific, individual dynamic range which allows you to create a more precise first fit to optimize the hearing benefit for each patient. This method is applicable for all users, independent from hearing loss, surgical technique, and placement. It can be performed with all versions of the SAMBA audio processor as well as with the Amadé audio processors.

Loading the Vibrogram settings

To obtain the Vibrogram thresholds, calibration settings have to be temporarily loaded into the audio processor. Therefore, in the CONNEXX main menu bar, **Fitting > Test Settings** should be selected and the corresponding **Test settings** window (Figure 3) will appear. Now select **Vibrogram Settings** to load the calibrated test settings.
The audio processor is now placed over the implant coil on the patient's head.

DO NOT CLOSE THE TEST SETTINGS WINDOW UNTIL YOU HAVE PERFORMED THE VIBROGRAM MEASUREMENT.

Test settings - [Right Hearing Instrument]
Full on gain setting
Testsetting for coupler and insitu measurements omnidirectional mode
Vibrogram Settings
Loudness Scaling
There is no testsetting active.
Please choose a testsetting by pressing the appropriate button.
The testsetting will be activated immediately.
Close
Help

Figure 3

Measuring the Vibrogram

Select the Vibrogram tab from the six tabs available. The Vibrogram table will appear (Figure 4).

THE SAMBA AUDIO PROCESSOR MICROPHONES WILL BE AUTOMATICALLY DEACTIVATED DURING THE MEASUREMENT AND ARE REACTIVATED WHEN CLOSING THE TEST SETTINGS WINDOW. PLEASE NOTE: DO NOT MUTE THE MICROPHONES MANUALLY DURING THIS PROCEDURE.

The method of obtaining a Vibrogram is the same as obtaining an audiogram. Please advise the patient accordingly. It is recommended to start the measurement at 1 kHz and 30 dB above the bone conduction threshold, introducing the user to the stimulus. Select the corresponding button within the matrix to activate the tone and start the measurement. The tone will remain active until either another test tone is activated or the stop button is used.
Please note down the individual Vibrogram thresholds obtained for the whole frequency range.
In case the dynamic range of the user is limited, it might also be useful to obtain uncomfortable loudness levels (UCL values) with the Vibrogram tab and then transfer them into the CONNEXX audiogram using the UCL symbols.

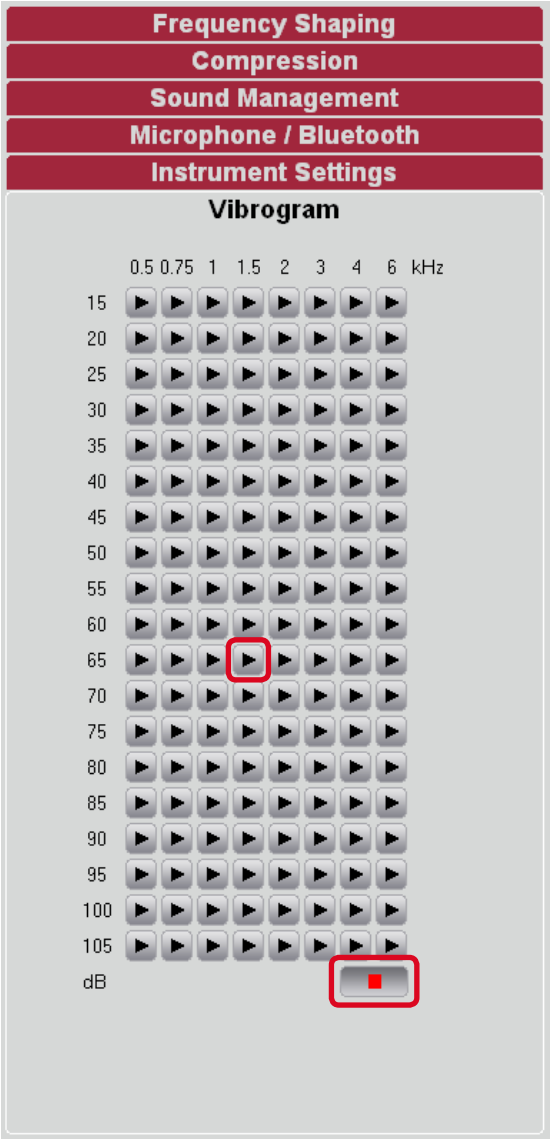


Figure 4

Completing the Vibrogram measurement

When the measurement is finished, close the **Test Settings** window and the following message will appear (Figure 5).
Always select **Yes** in order to reprogram the previous settings, as the calibrated test settings should not be left in the SAMBA. The Vibrogram thresholds obtained can now be entered in the **Audiogram** tab.

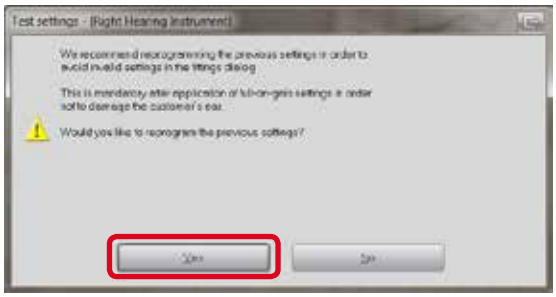


Figure 5

Entering the Vibrogram thresholds in the Audiogram Tab

Open the Audiogram tab which is the first of five tabs in the CONNEXX software and insert the Vibrogram thresholds obtained. This data will be used by CONNEXX to calculate the target gains for the audio processor.

THE VIBROGRAM THRESHOLDS MUST BE ENTERED USING THE AIR CONDUCTION (AC) SYMBOLS (SEE ARROW). PLEASE EXTRAPOLATE THE VALUES AT 125 Hz AND 250 Hz AS MARKED IN THE AUDIOGRAM (FIGURE 6).

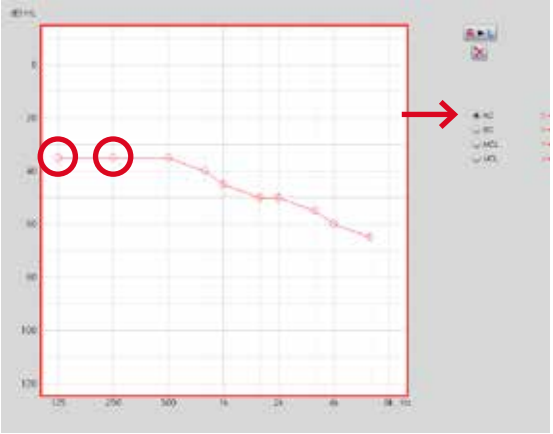


Figure 6

First Fit of the SAMBA audio processor

After entering the Vibrogram thresholds in the Audiogramm tab, select the symbol **Detect connected instruments** (Figure 7). The **Detect hearing instruments** window will open (Figure 8).

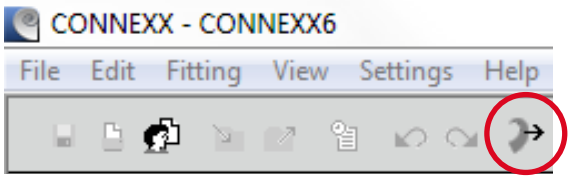


Figure 7

Select **New fitting (go to First Fit configurator)** and confirm your selection. You will be prompted in the **Save session** window to store changes from the previous session. Press **Ok** to store the changes. The audio processor will be detected and the **Remote control configuration** window will appear.

Figure 8

Select the **Remote Control** tab and activate the VIBRANT MED-EL remote control via the checkbox and select **Ok** (Figure 9). The remote control allows the user to switch between the different fitting programs as well as to change the overall volume in each of these programs. If no remote control is selected only the Universal program is available in the SAMBA audio processor.

Figure 9

AT THIS STAGE, IT IS ALSO POSSIBLE TO REGISTER THE SIEMENS miniTEK™ * AS AN ALTERNATIVE REMOTE CONTROL IF AVAILABLE. FOR A MORE DETAILED DESCRIPTION ON HOW TO USE THE miniTEK™, PLEASE REFER TO THE CORRESPONDING APPENDIX.

First Fit Navigator

After registering the remote control, the **First Fit Navigator** is started. Select **Next** to reach the **Fitting Method** screen.

Fitting Method – Acclimatization Level and Fitting Formula

For the Bonebridge, the fitting formulas **DSL I/O,** or **NAL–NL1** can be used. In addition, for the Vibrant Soundbridge **NAL-NL2** is also available. When using DSL I/O or NAL-NL1, the setting of the **Acclimatization level** reflects the user's experience with amplification from conventional hearing aid systems. Please set accordingly. (Figure 10)

Figure 10

Volume Control Range

The volume control range, displayed by the shaded area around the 65 dB gain curve (Figure 11), allows you to select the amount of overall gain the user is able to set via the remote control (from 0 dB up to 32 dB). It is recommended to leave it at the pre-defined 8 dB range.

ALL FREQUENCY DEPENDENT CHANGES CAN BE IMMEDIATELY SEEN IN THE GRAPHICAL DISPLAY (FIGURE 11). FOR AN APPROPRIATE GRAPHICAL REPRESENTATION OF THE CURVE DISPLAY, PLEASE REFER TO THE CORRESPONDING APPENDIX.

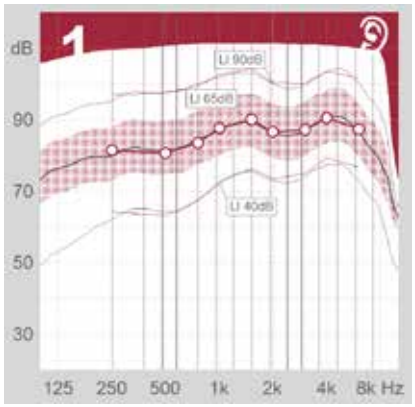


Figure 11

Number of Programs

The number of programs in the First Fit can be chosen if the remote control has been previously selected. By default, three programs are selected, but up to five programs can be chosen for the SAMBA audio processor. Each program contains presets which are automatically optimized for different listening situations by the CONNEXX fitting software. Melody beeps for the battery warning tone, program change tone and others are set automatically.

AT THE FIRST FIT IT IS RECOMMENDED TO ACTIVATE ONLY THE FIRST PROGRAM (UNIVERSAL), SINCE THIS PROGRAM BENEFITS FROM AN AUTOMATIC MICROPHONE SETTING AND THE AUTOMATIC ADJUSTMENTS OF THE INTELLIGENT SOUND ADAPTER. MORE INFORMATION CAN BE FOUND IN THE CORRESPONDING APPENDIX.

Apply First Fit

By selecting **Apply First Fit** (Figure 10), the first fit configuration is completed and you will be automatically forwarded to the **Basic Tuning** tab.

Basic Tuning

In the Basic Tuning screen, the most important parameters for an appropriate First Fit are set. It facilitates user interaction on the basis of only a few fundamental adjustment options. Simple questions relating to hearing impressions with the SAMBA and how they can be adjusted are answered within this section.

Adjust the First Fit

Master Gain
If the overall volume of the system is reported by the user as being too loud or too soft, it can be changed with the **Master Gain** (Figure 12).

Figure 12

Loudness
Another possibility is to improve the fitting by adjusting the volume of **loud sounds, speech, soft sounds** and the volume of the user's **own voice** separately.

Sound Quality
According to the information given by the user, the sound quality can also be adjusted by selecting **too sharp** or **too muffled**. The button **too sharp** will reduce the gain in the high frequencies and simultaneously increase the gain in the low frequencies. The opposite effect will be achieved by selecting **too muffled**. The Vibrant Soundbridge and the Bonebridge are able to provide high frequency amplification, which the user might not be used to in the beginning. Acclimatization is recommended but it may be necessary to reduce the gain in the high frequencies at the first fit. Otherwise, the user may also benefit from more gain in the high frequencies at a later stage.

SAMBA BB in Single-Sided Deafness (SSD)

If the user is implanted with a Bonebridge due to the indication of single-sided sensorineural deafness (SSD), the SYMFIT 7.0 software offers a special pre-setting in the Basic Tuning tab. The target curves of the SAMBA BB will be automatically adapted to the needs of SSD users by selecting the SSD checkbox. (Figure 13)

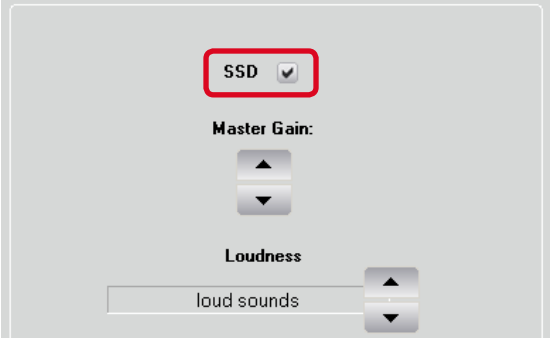


Figure 13

AFTER ADJUSTING THE FIRST FIT VIA THE BASIC TUNING SCREEN, THE USER CAN BE SEND HOME TO GAIN EXPERIENCE WITH THE DEVICE AND THE NEW HEARING SITUATION. ADDITIONAL PROGRAMS CAN BE ADDED ACCORDING TO THE USER'S NEEDS. HOWEVER, IT IS ADVISABLE TO LET THE USER ACCLIMATIZE TO THE FIRST PROGRAM DURING THE FIRST WEEKS OF USING THE IMPLANT SYSTEM. FURTHERMORE IT IS RECOMMENDED THAT THE USER MAKES A WRITTEN NOTE ABOUT THE FIRST HEARING EXPERIENCES. THIS INFORMATION CAN THEN BE USED IN THE FOLLOW-UP FITTING SESSION.

FINE TUNING FOR AN IDEAL FITTING IS RELEVANT AT A SUBSEQUENT FOLLOW-UP VISIT, AFTER APPROPRIATE LISTENING EXPERIENCES HAVE BEEN OBTAINED BY THE VIBRANT SOUNDBRIDGE OR BONEBRIDGE USER. FINE TUNING AFTER THE FIRST WEEKS OF LISTENING EXPERIENCE IS AN ESSENTIAL SECOND STAGE OF ANY FITTING STRATEGY. AS MENTIONED IN THE FIRST FIT CHAPTER, THE USER SHOULD BE ABLE TO PROVIDE YOU WITH GOOD INFORMATION ABOUT THE HEARING EXPERIENCE FOR THE FOLLOW-UP FITTING.

Routine procedure

AS WITH EVERY APPOINTMENT, PLEASE CHECK THE MAGNET STRENGTH, ASK ABOUT THE OVERALL FEELING WITH THE SAMBA AND THE AVERAGE DAILY WEARING TIME.

Please read out the connected SAMBA audio processor via **detect connected instruments,** proceed with **Follow-Up fitting (go to Fine Tuning)** and select **Ok**. You will be forwarded to the **Fine Tuning** tab. You may now continue with the **Fitting Assistant** or perform a manual fitting in the **Fine Tuning** tab.

Fitting Assistant

In addition to the information found in this fitting guide, the **Fitting Assistant** within the SYMFIT 7.0 software (Figure 14) provides fitting and troubleshooting suggestions for immediate adjustment during the fitting session. Fitting adjustments in accordance to the user's feedback can be directly addressed with the suggestions made by this assistant. Start the assistant by selecting **Fitting > Fitting Assistant** in the upper menu bar of the CONNEXX software.

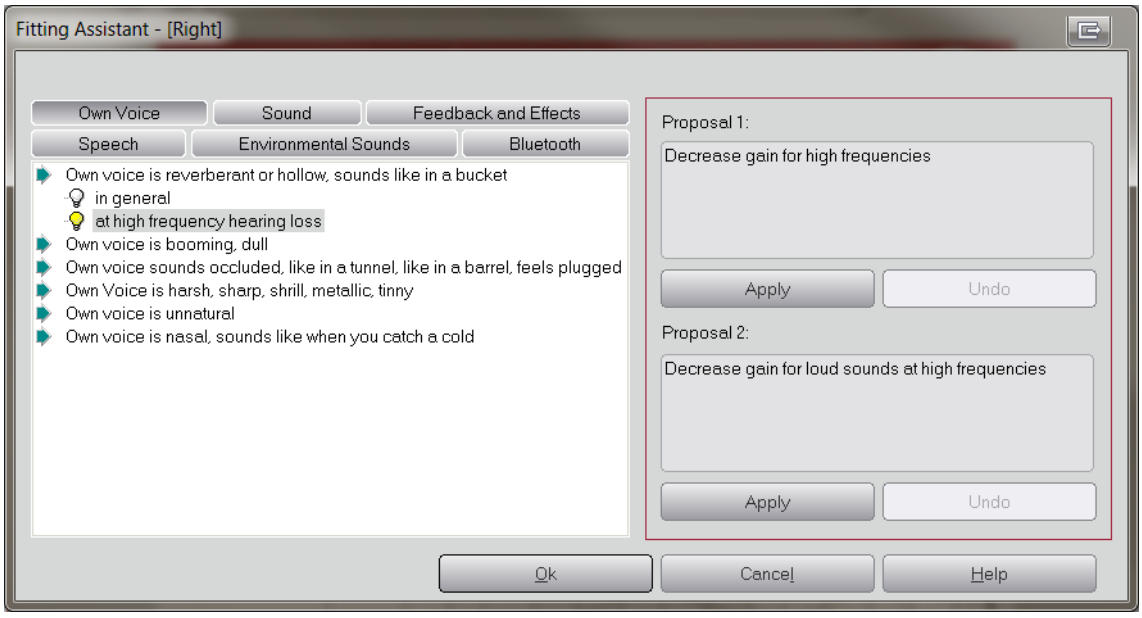


Figure 14

Fine Tuning

For more refined fitting settings in addition to the Fitting Assistant, the **Fine Tuning tab** within the CONNEXX software allows the professional to further optimize the fitting according to the user's feedback. In this tab, the fine adjustments for the fitting of the SAMBA can be made. Changes in specific Frequency Gain settings, Maximum Power Output as well as Compression, Sound Management, Microphone/Bluetooth adjustments and Instrument Settings can be made in this tab.

Frequency Shaping

In addition to the Master **Gain** adjustment in the Basic Tuning tab, here you are able to set the **Gain** for each of the 16 individual frequency bands separately (Figure 15). You can also select several frequency bands at the same time for a quick and easy adjustment.

The Maximum Power Output (MPO)

The Maximum Power Output should be used if the user experiences very loud sounds as uncomfortable.
The output limiter in the SAMBA can be modified in different frequency ranges (**Multichannel**), but also a limitation over the whole frequency range (**Broadband**) can be selected here. (Figure 15)

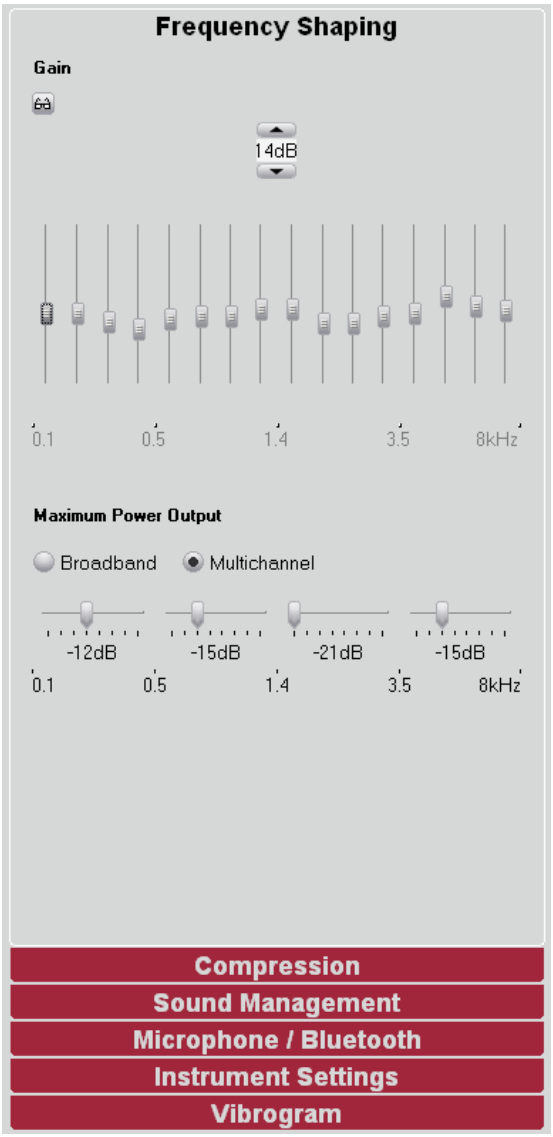


Figure 15

Compression

Within this area an independent adjustment of the **Gain for soft sounds (LI 40 dB)**, the **Master Gain** (conversational level) and **loud sounds (LI 90 dB)** is possible in up to 16 channels. These settings will also result in automatically matched values of compression kneepoints and compression ratios as well as the gain in the respective equalizer bands. Select the view options **eyeglass button** and select the number of channels you want to display for Frequency Shaping as well as for Compression settings (Figure 16).

Kneepoints and Ratios (CK, CR)
By selecting **show kneepoints** (Figure 16), individual adjustments to the compression kneepoints, compression ratios and time constants may be carried out by double-clicking on the related box. You can go back by selecting **show gain controls.**

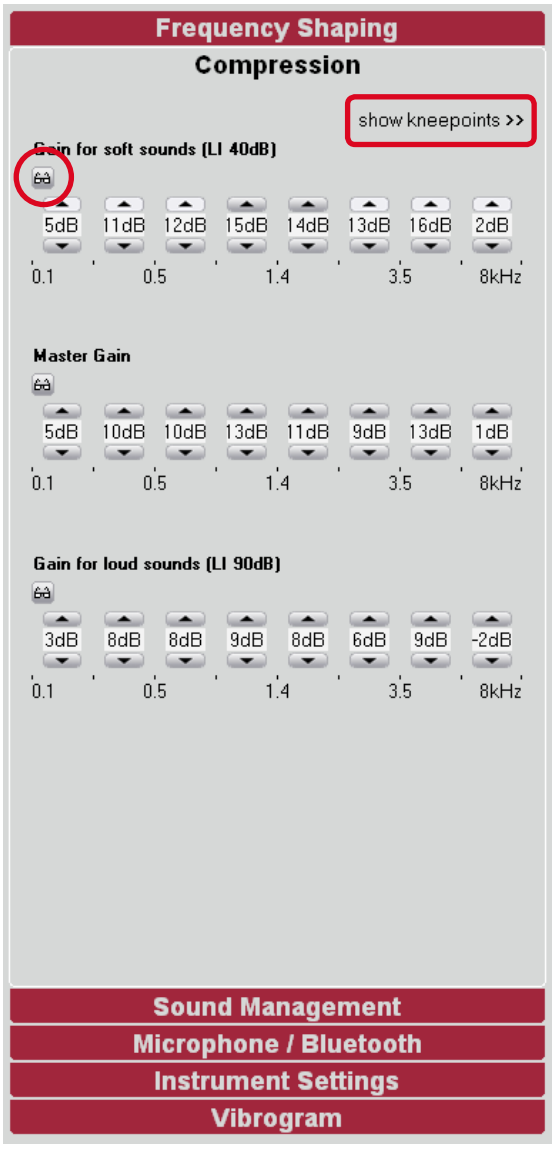

Frequency Shaping
Compression
show kneepoints >>
Gain for soft sounds (LI 40dB)
5dB 11dB 12dB 15dB 14dB 13dB 16dB 2dB
0.1 0.5 1.4 3.5 8kHz
Master Gain
5dB 10dB 10dB 13dB 11dB 9dB 13dB 1dB
0.1 0.5 1.4 3.5 8kHz
Gain for loud sounds (LI 90dB)
3dB 8dB 8dB 9dB 8dB 6dB 9dB -2dB
0.1 0.5 1.4 3.5 8kHz
Sound Management
Microphone / Bluetooth
Instrument Settings
Vibrogram

Figure 16

Sound Management

With the tools in this tab, the **Speech and Noise Management, Sound Smoothing, Wind-noise Reduction,** and **FeedbackStopper** can be adjusted (Figure 17). These settings can support the user's hearing experience in different environmental situations.

Speech and Noise Management
This feature evaluates the noise currently detected by the SAMBA and optimizes the hearing comfort and the speech intelligibility accordingly for each acoustical situation. **Multichannel** allows noise attenuation in four frequency channels independently. If the checkbox **Speech in noise only** is selected, the **Speech and Noise Management** is activated only if spoken language in noise is detected.

Sound Smoothing
If activated the SAMBA detects loud and sudden sounds (such as clattering dishes, rustling paper, or slamming doors) which can be disturbing for hearing impaired people. **Sound Smoothing** reduces the loudness of such sounds, but does not affect speech intelligibility or soft impulsive sounds.

Wind-noise Reduction
This feature is useful for outdoor use, where wind can possibly generate unwanted noise in the audio processor's microphones. This noise will be detected and selectively reduced, whilst increasing the user's listening comfort.

FeedbackStopper
Although feedback rarely occurs with the Vibrant Soundbridge and the Bonebridge, this technology provides effective feedback reduction.

- Slow setting: Feedback is only mildly reduced by keeping the sound quality constant. This is ideal for users who are less bothered by occasional feedback.

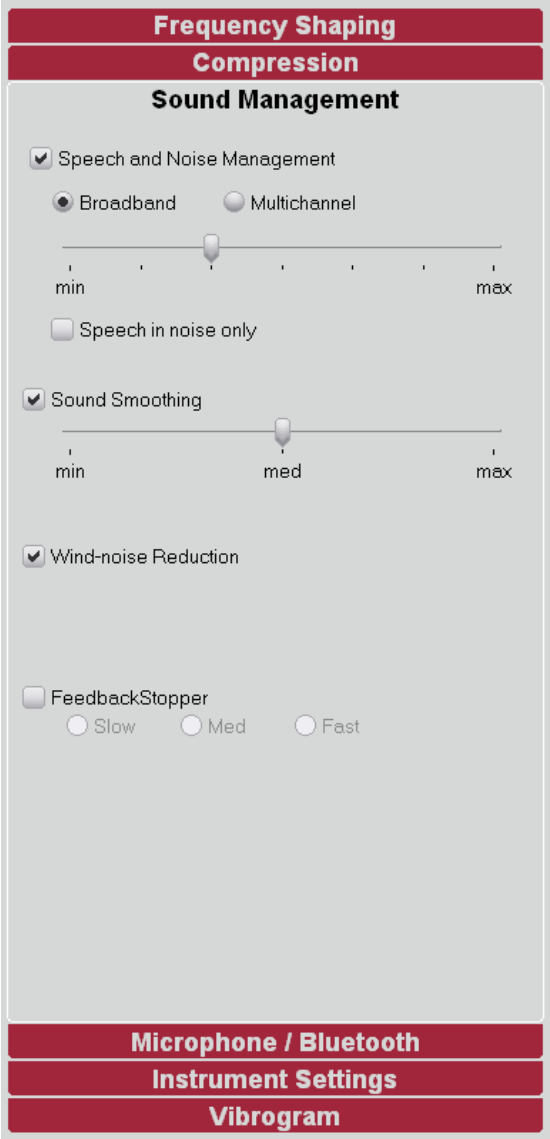


Figure 17

- Medium setting: More effective feedback reduction with minor changes in sound quality.
- Fast setting: Fast feedback reduction should be used if massive feedback occurs.

Microphone/Bluetooth

Automatic/Ambient Sound
The automatic microphone option in the SAMBA constantly monitors the sound environment and sets the microphones according to the listening situation: Ambient Sound for quiet situations, adaptive directional microphone for noisy environments and omnidirectional while listening to music. This mode is the default option in Program 1 (Universal).
To fine-tune its function, it is possible to adjust the **Activation Threshold** at which the microphone switches from the omnidirectional to directional mode (default is 54 dB). This is the level that the environmental noise has to reach before the directional microphone is activated.
By selecting **Speech in noise only** the directional microphone will be activated only when speech in noise is detected. When music or speech in quiet is detected, the omnidirectional microphone is activated. (Figure 18)

Speech Tracking
Speech Tracking continuously scans sounds in the listening environment for speech patterns and sets the microphones' directivity towards speech. With Speech Tracking, the user can hear speech well in the presence of background noise, even when it comes from behind or from the side. This is ideal when driving a car or the user cannot look at the person he or she is speaking to.

Directional (Adaptive)
Directional adaptive microphones are focusing on sounds which originate from the front of the user, while they follow and reduce noises from other directions as they move, making it much easier to listen in noisy environments.

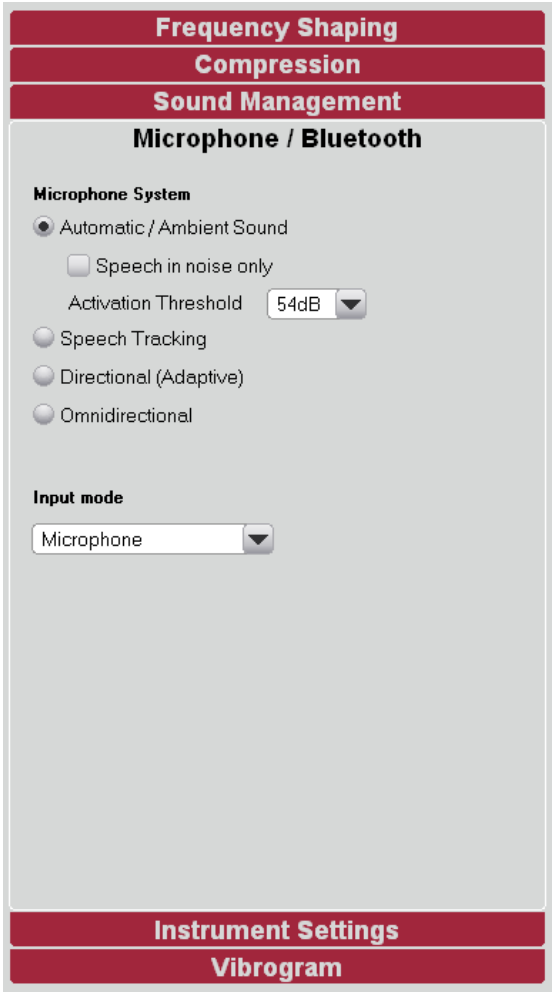


Figure 18

Omnidirectional
The omnidirectional microphone is recomended for music and outdoor programs.

Input Mode
The Input Mode is automatically set to Microphone when using the VIBRANT MED-EL remote control. Other choices will only be available if a miniTEK™ * is registered within CONNEXX.

Instrument Settings

Within the Instrument Settings tab (Figure 19) it is possible to enable or disable either melodies (**Alert profile Advanced**) or a series of beeps (**Alert profile Basic**) which indicate the following situations:

- **Program change:** Plays a melody / beep when switching through programs.
- **Power-on / off:** To play a melody / beep when the audio processor is switched on or off.
- **VC (volume control change):** Indicates when the volume is changed.
- **VC limit:** To indicate that the upper or lower limit of the volume control range is reached.
- **VC Power-on Position:** To indicate that the starting point (power-on position) of the audio processor is reached while adjusting the volume.
- **Low battery:** Plays a melody / beep when the battery power is low.

Alert profile, Loudness, Frequency

The **Alert profile** can be selected between **Basic and Advanced**. The loudness of the alert tones can be set in 10 dB steps from 55 dB to 85 dB. When the alert profile Basic is selected, the frequency of the alert tones can be set to 500, 750, 1250, or 1500 Hz. When the alert profile Advanced is selected, the frequency of the beep is set automatically and cannot be adjusted. Enabling a melody / beep in one program affects all other listening programs.

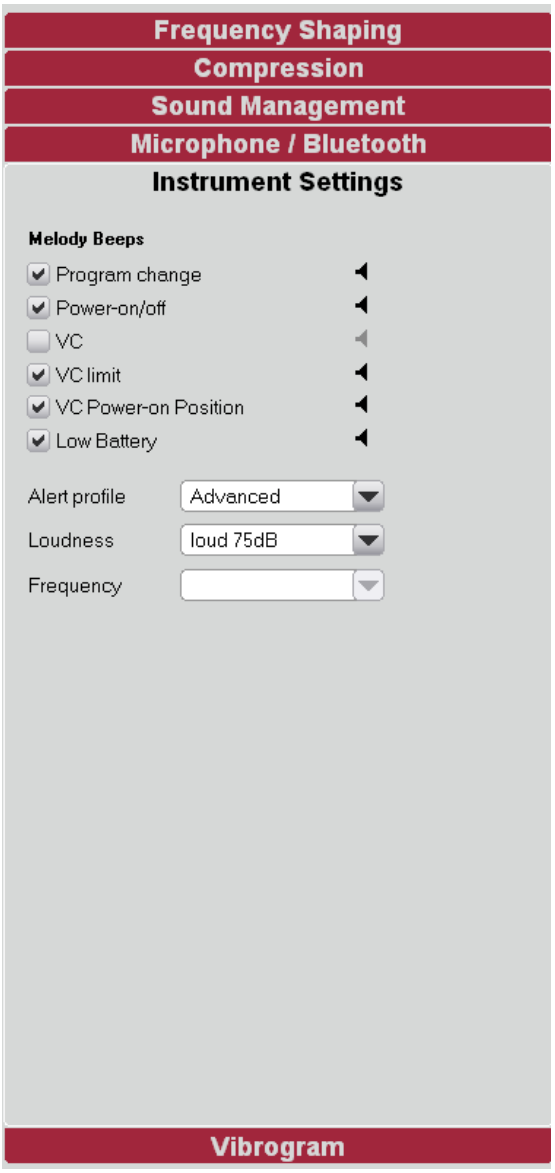


Figure 19

FOLLOW-UP FITTING AND FINE TUNING NOW ARE COMPLETED. THE FITTING WAS INDIVIDUALLY OPTIMIZED AND THE USER CAN BE SENT HOME UNTIL FURTHER ADJUSTMENTS SEEM NECESSARY AT A SUBSEQUENT APPOINTMENT.

Appendices

miniTEK™ *

The SAMBA is equipped with a wireless connection which enables the user to connect to the Siemens miniTEK™. Due to the wireless connection of this alternative remote control, the SAMBA is able to pick up the direct target signal (e.g. from a Bluetooth enabled source like a phone, TV or music player, Telecoil or a FM system) and transmit it directly into the audio processor without delay.

PRIOR TO FITTING THE CONNECTED AUDIO PROCESSOR TOGETHER WITH THE miniTEK™ REMOTE CONTROL, PLEASE ATTACH THE REMOTE TO THE PC VIA USB (USB TYPE A > USB TYPE MINI-B). FOR A DETAILED DESCRIPTION OF ALL SIEMENS miniTEK™ REMOTE FUNCTIONS AND CAPABILITIES, PLEASE REFER TO THE CORRESPONDING USER MANUAL.

You can register the Siemens miniTEK™ remote instead of or in addition to the VIBRANT MED-EL Remote Control at the stage of First Fit. (Figure 20) By doing so, please choose at least 4 hearing programs in the First Fit Navigator, as there will be two of these programs especially assigned to the Siemens miniTEK™. P2 will be automatically set to **Bluetooth Phone** and P4 will be set as the **TEK/miniTEK™ (Audio/TV)** program.

Figure 20

**Wireless connectivity feature is available with the Siemens miniTEK™. Sivantos is not responsible for the operation with the SAMBA or its compliance with safety and regulatory standards in operation with the SAMBA.*

A Siemens miniTEK™ remote can be added at a follow-up fitting appointment by selecting the **Wireless Settings and Accessories** button (Figure 21); the **Wireless** dialogue will open.

Note: Whenever changes are made within the SAMBA programs the **Wireless Settings and Accessories Button** will be highlighted in yellow.

To enable the remote control to also adopt these changes, this button must be pressed to allow synchronization of the SAMBA and the remote control or miniTEK™.

The **Wireless Settings and Accessories Button** turns grey when a successful synchronization was performed.

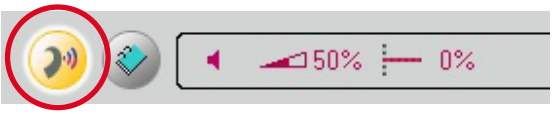


Figure 21

The two miniTEK™ remote related programs mentioned above, must then be set manually after registering the Siemens remote. Whereas the **Bluetooth Phone** program can only be chosen in program slot #2, for the **Tek/miniTEK™ (Audio/TV)** program. You can choose slot #3, #4 or #5.

Only if a Siemens miniTEK™ remote has been selected, the additional **Input modes** (Figure 22) will become available in the **Microphone / Bluetooth** tab under **Fine Tuning** for the following Programs (Figure 23).

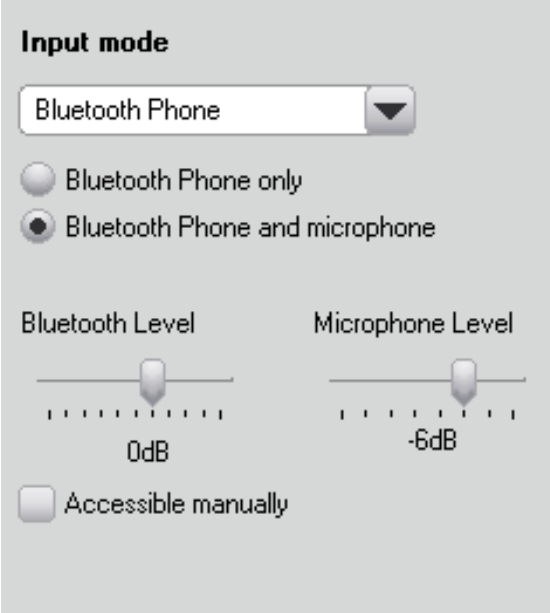


Figure 22

Figure 23

Intelligent Sound Adapter

With the Intelligent Sound Adapter the SAMBA can learn how the user likes to hear in different situations. This technology improves listening performance by automatically adjusting acoustic parameters to an individual's listening preference for different environments. The result is an intuitive audio processor that automatically adjusts itself to suit user's listening preferences, vastly eliminating the need for manually changing the volume after the learning period.

Intelligent Sound Adapter is accessible under the **DataLearning/-Logging**... dialog (Figure 26).
It is available in Program 1 (Universal), Programs 2 and 3. In Program 1 the Intelligent Sound Adapter allows a more specific evaluation of the user's listening behavior, by showing independent setting preferences for Speech, Noise and Music. (Figure 27)

Figure 26

Figure 27

The **Usage Analysis** dialog shows logged data such as **Wearing Time** and **Microphone Modes** for each listening program. **Acoustical environment** shows the percentage of times the user has been hearing speech, noise and music. This percentage is also reflected in the Usage Analysis pie chart. (Figure 27)

Within the **Gain Preferences** tab learned gain settings for each of the three listening situations in the Universal program can be seen. When learning has occurred for one of the three situations, an exclamation mark (!) will be displayed in the respective situation on the pie chart. (Figure 28)

THE AUDIO PROCESSOR SHOULD BE WORN FOR AT LEAST ONE WEEK BEFORE AN ANALYSIS OF LOGGED DATA IS DONE. OPTIMALLY, LEARNED SETTINGS FOR ALL THREE CLASSES SHOULD BE OBTAINED AFTER APPROXIMATELY TWO WEEKS.

Figure 28

Curve Display

In order to have a good graphical representation of the applied fitting strategy, it is recommended to set a suitable **Curve Display** (Figure 24) in the CONNEXX software.

The curve display shows:

- x-axis: the **Frequencies** from 125 Hz to 8 kHz
- y-axis **Gain** or **Output** (depending on the curve display visualization)

Three black lines and three coloured lines (cherry red or teal, depending on side) can be seen in the curve display. **The coloured lines** represent the **target gain/output** that CONNEXX calculated in the first fit according to the audiogram for inputs of 40 dB (soft sounds), 65 dB (conversational level) and 90 dB (loud sounds). The **black lines** represent the current settings that are stored in the SAMBA and therefore the **actual gain or output** of the system for all input levels (40 dB, 65 dB and 90 dB).

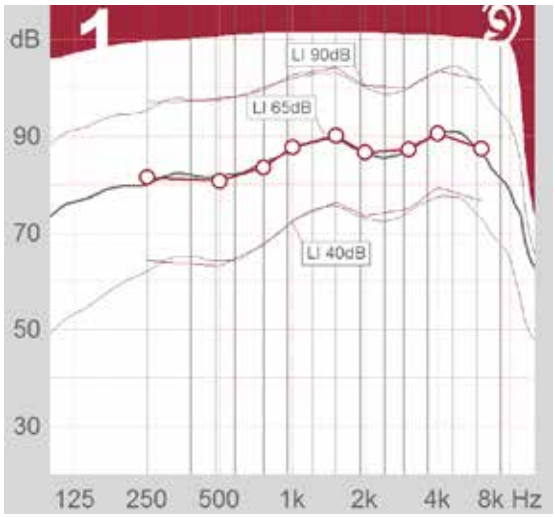


Figure 24

Setting the curve display

To display the correct values for the Vibrant Soundbridge and Bonebridge systems, it is recommended to change the default settings of the CONNEXX software in the **Curve Display** (Figure 25).

This can be achieved by selecting **Settings → Preferences** in the menu bar. The first tab shown is the **Curve Display** tab where the following settings have to be selected.

- **Gain (G)** or **Output (LO):** This defines whether the gain or the output of the system is displayed. The output level for the Vibrant Soundbridge is given in db SPL (sound pressure level).
  The output level for the Bonebridge is given in db FL (force level).
- **Coupler Type:** Set to **Ear Simulator**
- **Stimulus:** Set to **Pure Tone**

Press OK to apply the settings.

Figure 25

THE CHANGE OF CURVE DISPLAY VISUALIZATION ONLY NEEDS TO BE DONE ONCE. IN FOLLOWING CONNEXX SESSIONS, THESE SETTINGS WILL BE SHOWN BY DEFAULT.

Useful CONNEXX Tools

Store and recall hearing instrument settings
To **store SAMBA settings** for quick access and later use, press the icon in the toolbar (Figure 29).

Figure 29

The following dialog box appears: (Figure 30)
The hearing instrument type and date/time are automatically entered and cannot be altered.

Activate the checkboxes for the program settings, which are to be stored.

A **Comment** can be added to the text field at the top of the menu, which relates to this setting.

Select the **Store** button to store the hearing instrument setting. The hearing instrument setting shown on the screen is stored permanently in the client's data form. If the setting is not to be stored, select the **Cancel** button to return to the main CONNEXX window.
For evaluation purposes, it may prove useful to compare the current settings with a previous fitting. To recall previously stored SAMBA settings, select **Recall Settings**... in the **Edit** menu or select the icon in the toolbar. Please note that everything stored here is not stored in the user database. It is only stored on your local CONNEXX installation and these settings cannot be exported.

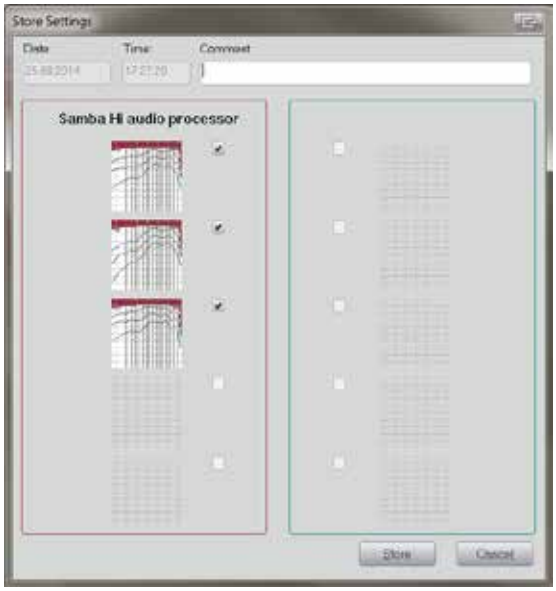


Figure 30

Save a complete fitting session
To save a completed hearing instrument fitting and all associated data, select **Save Session**... in the File menu, or select the highlighted icon in the toolbar (Figure 31). The dialog box for saving a session will appear: (Figure 32)

Figure 31

Session Comment: Enter a comment for this fitting. This comment will appear later in the session list. Completion of this field is optional.

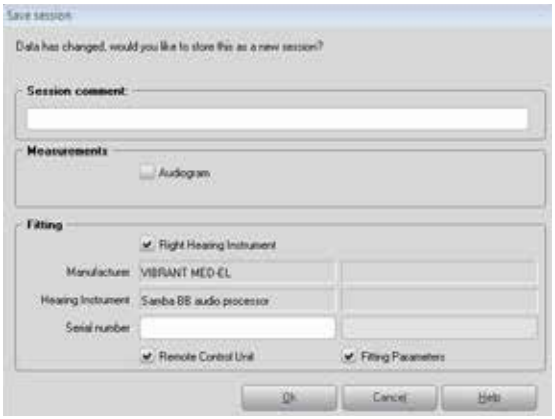


Figure 32

Fitting: Select the data to be stored for this fitting by checking Audiogram, Right Hearing Instrument and/or Left Hearing Instrument. The input fields **Manufacturer** and **Hearing Instrument** are automatically filled in and cannot be changed. Enter the serial numbers of the hearing instruments in the input field **Serial Number**, if desired. By selecting **Ok**, the selected fitting data is stored and is available for later use. The **Ok** button cannot be chosen if no data has been selected. By selecting **Cancel,** the dialog box is closed and data is not saved.

Mute button

Select the **loudspeaker symbol** (Figure 33) in the lower toolbar to mute the SAMBA. Select the symbol a second time to unmute the SAMBA.

Figure 33

Program link

To make changes in several programs at the same time select the marked chain symbols (Figure 34). Use the same icon to disconnect the programs from each other.

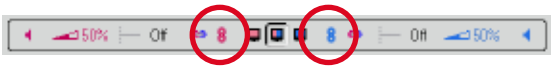


Figure 34

Binaural link

For bilateral SAMBA users, a setting for both audio processors can be changed simultaneously. To apply a change to one program and also for the respective program on the contralateral side, select the marked symbols (Figure 35).

Figure 35

Critical Gain Measurement

If feedback occurs after activation, the **Feedback Cancellation** system can be activated within the **Speech/ Sound** settings.

In addition, an automated anti-feedback analyzer is available by selecting **Critical Gain Measurement** in the Fitting menu or with the respective icon (Figure 36).

Figure 36

When selecting **Start Measurement** the hearing implant generates an impulse sound across the whole frequency range for the programs that have been selected. This impulse sound is ciphered and analyzed by the microphones. Select **Optimise** to apply the recommended settings. (Figure 37)

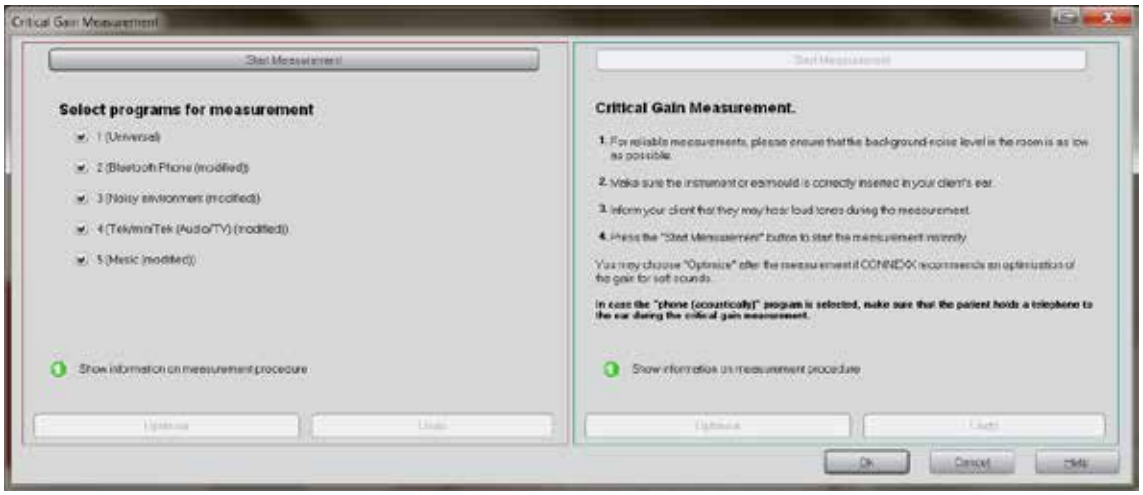

Critical Gain Measurement
Start Measurement
Select programs for measurement
1 (Universal)
2 (Bluetooth Phone (modified))
3 (Noisy environment (modified))
4 (Tele/mini Tek (Audio/TV) (modified))
5 (Music (modified))
Show information on measurement procedure
Optimise
Undo
Critical Gain Measurement.
1. For reliable measurements, please ensure that the background noise level in the room is as low as possible.
2. Make sure the instrument or earmould is correctly inserted in your client's ear.
3. Inform your client that they may hear loud tones during the measurement.
4. Press the "Start Measurement" button to start the measurement instantly.
You may choose "Optimise" after the measurement if CONNEXX recommends an optimisation of the gain for soft sounds.
In case the "phone (acoustically)" program is selected, make sure that the patient holds a telephone to the ear during the critical gain measurement.
Show information on measurement procedure
Optimise
Undo
Ok
Cancel
Help

Figure 37

Import and export of client data
With the help of this tool, client data can be imported and exported. Start the tool by selecting **Client DB Import/Export** ... from the file menu.

Exporting client data
The saved client data can be exported by choosing between one, several or all entries (Figure 38). With the **Show all** button all the clients saved on the current workstation are displayed. Entries can be selected from this list. To define the location as to where the exported data should be saved, insert the corresponding file path and file name in the field **Export client data to file.** After you have selected at least one entry, the export process can be started with the **Export** button. In a subsequent step, the type of export has to be defined:
Export data for standalone use: SHS compatible data will be exported. NOAH import is not possible with this format.

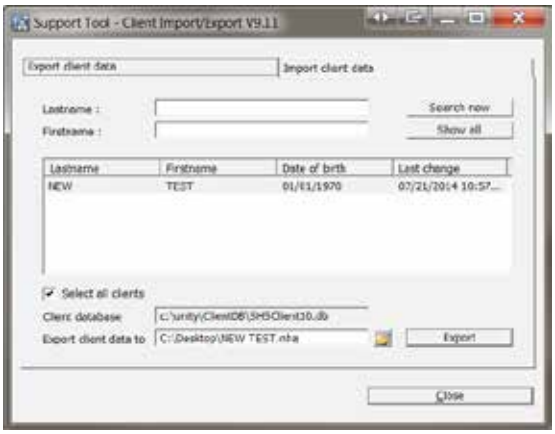


Figure 38

Export data for use in NOAH: NOAH compatible data will be exported. Here your NOAH user ID has to be entered.

Importing client data
Client data can be added to the database via the import function (Figure 39) by selecting **Import client data from file**, navigating to the file's location, and selecting the appropriate file. The **Client database location** displays the database, to which the new data will be added.

If an NHA file is selected the whole list of clients, which will be added during the import process, is shown in the list field. Select the import button to start the import process.

Please be aware that importing client data is only possible with the identical version of the Import/Export tool that you used for exporting the client data. The client database is not compatible with earlier versions of CONNEXX.

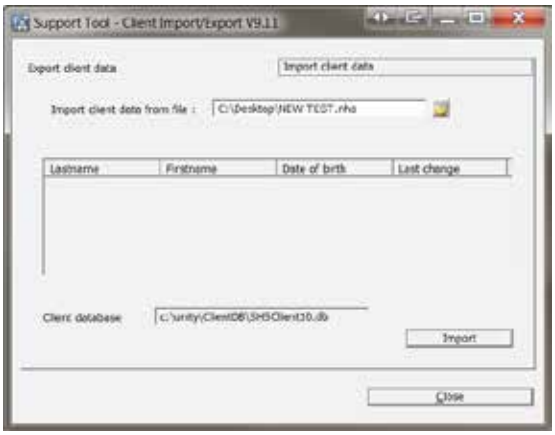


Figure 39

MED-EL

MED-EL – A TRUSTED PARTNER
Meet MED-EL

At MED-EL, our goal is to overcome hearing loss as a barrier to communication and quality of life worldwide. Based in Innsbruck, Austria, MED-EL has over 1,500 employees and is present in more than 100 countries.

For nearly 40 years, MED-EL founders Ingeborg and Erwin Hochmair have been pioneering cochlear implant research. As a company, MED-EL has been driving innovation in the field of hearing implants for more than 20 years.

Let us know if you have any questions.

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